

WILDLIFE MONITORING PLAN
Katmai National Park and Preserve

— 1984 —

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The National Park Service is required by law to "conserve the natural and historic objects and the wildlife [in parks] and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired...." The Alaska National Interest Lands Conservation Act of 1980 (ANILCA) additionally mandates the preservation of natural and healthy populations of wildlife in Katmai National Park and healthy wildlife populations in Katmai National Preserve. Fulfillment of these obligations requires information on the status and trends of wildlife populations and on their ecological relationships, and the incorporation of this information into park management. This plan delineates the monitoring and research necessary to provide needed information.

Nonconsumptive uses of terrestrial wildlife, such as viewing and photography, are permitted in Katmai National Park. The objective of wildlife management in the park is to maintain the natural diversity, numbers, and behavior of wildlife populations by preserving the natural processes that govern them and by minimizing modern human influence. The esthetic, ecological, and scientific values of natural wildlife communities in the park are of primary importance.

Subsistence and sport-hunting, as well as nonconsumptive uses, of wildlife are permitted in Katmai National Preserve in accordance with State regulations. The objective of wildlife management in the preserve is the long-term maintenance of healthy wildlife populations in their natural diversity and abundance in such a way that natural processes of wildlife population regulation in the park are not disrupted.

A Memorandum of Understanding concerning wildlife management exists between the Alaska Department of Fish and Game, which is responsible for management and protection of wildlife throughout the state, and the National Park Service, which is responsible for conserving wildlife and its habitat

in Katmai. Programs for monitoring wildlife in Katmai will be designed to provide information that can be directly compared with information collected by the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service on adjacent lands. All monitoring and research described in this plan will be carried out in cooperation with the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service.

Aerial surveys will employ a Piper Supercub or equivalent aircraft, if possible. Surveys will generally be conducted during morning hours. Optimal survey conditions consist of clear to slightly overcast sky, no precipitation, no wind, and, during winter, snow-covered terrain. The aircraft will be flown at a speed of approximately 80-100 miles/hour and at an elevation of 100-500 feet.

Monitoring efforts will focus on certain species of special interest, primarily endangered/threatened species, avian and mammalian predators, and species that are particularly subject to impact from recreational disturbance, harvest, or commercial/industrial development. Specifically, the species of special interest are:

Peregrine falcon

Bald eagle

Coastal seabirds

Brown bear

Wolf

Lynx

Mustelids, such as river otter, mink, and sea otter

Sea lion

Seal

Moose

Caribou

Peregrine Falcon

Peale's peregrine falcon (*Falco peregrinus pealei*) is relatively common along the seacoast of Katmai. This nonmigratory subspecies is not threatened with extinction. Two sightings of peregrine falcons have been recorded in the interior of the park. These may have been Peale's peregrine falcons or the endangered American peregrine falcon (*F. p. anatum*). The migratory American peregrine falcon is slightly smaller and lighter brown in color than Peale's peregrine falcon (Beebe 1960).

The objective of monitoring is to obtain more definitive information on the existence of American peregrine falcons in the interior of Katmai.

Park employees who conduct backcountry patrols will familiarize themselves with the characteristics of Peale's and American peregrine falcons prior to the patrols. Any observation of a peregrine falcon will be recorded on a wildlife observation card (Form 10-577) and promptly reported to the Resource Management Specialist.

Est. cost: None

Bald Eagle

The "Protection of Bald and Golden Eagles" Act (16 USC 668-668d) provides for the protection of eagles and reflects the public interest in them. In Katmai, bald eagles (*Haliaeetus leucocephalus*) nest primarily along the coast and along inland rivers and lakes. Bald eagle nesting surveys were conducted throughout the park by W. Troyer during 1974-80.

The objective of monitoring is to identify trends in the numbers of nesting bald eagles. Of primary concern are eagles that are most likely to be subject to human disturbance.

An aerial survey will be conducted during late June or early July. This timing will provide an index of the number of successful pairs per year, but not on the number of unsuccessful nesting attempts. The shorelines of Naknek Lake, Brooks Lake, Grosvenor Lake, Coville Lake, Nonvianuk Lake, Savonoski River, Grosvenor River, American River, Nonvianuk River, Alagnak River,

and, if possible, Kukak Bay will be surveyed. To minimize disturbance of nesting eagles by low-flying aircraft, each area will be surveyed only once, though several flights may be required to survey all of the areas. The location of each nest will be marked on a 1:250,000 map. Data will be summarized to determine trends in the number and distribution of active nests.

Est. cost: \$2,800

Coastal Seabirds

Leases for exploratory petroleum-drilling have been let in Shelikof Strait. A number of studies have found that exposure to levels of petroleum as low as a few micrograms can result in substantial mortality of seabird eggs. Eggs may be exposed to this amount of petroleum when parent birds return to the nest after feeding on water that has a thin film of oil, such as that resulting from chronic low-level seepage.

Numbers of colonial seabirds nesting along the coast of Katmai will be monitored. Previous surveys documented the following approximate populations of seabirds: 9,000 glaucous-winged gulls (*Larus glaucescens*), 8,000 tufted puffins (*Lunda cirrhata*), 2,800 horned puffins (*Fratercula corniculata*), 2,000 cormorants (*Phalacrocorax* spp.), 1,000 pigeon guillemots (*Cepphus columba*), 900 black-legged kittiwakes (*Rissa tridactyla*), 200 black oystercatchers (*Haematopus bachmani*), 60 harlequin ducks (*Histrionicus histrionicus*), 25 common eiders (*Somateria mollissima*), and 20 parakeet auklets (*Cyclorhynchus psittacula*) (primarily Sowl 1973, unpubl. data; and Bailey 1981, unpubl. data).

The objective of monitoring is to identify population declines that are either abrupt and severe or that continue downward for several years.

Colonies located on Ninagiak, Shaw, and, if possible, Takli Islands will be monitored by ground personnel between June 20 and July 10. The number of individuals of each species present at each colony will be counted 5-6 times per day for 3-5 consecutive days. Counts will be of adults rather than nests in order to minimize disturbance and possible consequent predation on eggs or chicks.

The entire coast, including the areas that are monitored on the ground, will be surveyed aerially between June 20 and July 10. Surveys will be conducted between 10:00 and 15:00. Wherever a seabird colony is found, the colony will be overflown at a speed of approximately 75 miles/hour at an elevation of 150 feet above ground level. The observer will estimate and record the number of each bird species that is seen. If possible, a second observer will photograph the colony using black-and-white film for later enlargement and analysis.

Est. cost: \$6,900

Brown Bear

Brown bears (*Ursus arctos*) are a major attraction for visitors to Katmai. They are also an attraction for hunters outside of the park, and the Alaska Peninsula has been identified by the Alaska Department of Fish and Game as an area to be managed for trophy bear hunting. Because of the solitary nature, low density, and wide-ranging movements of bears, their populations are particularly difficult to monitor. During 1974-80, W. Troyer monitored the numbers and composition of bears aggregated along salmon spawning streams and identified the periods of peak concentration of bears.

The objective of monitoring is to detect trends in population numbers and composition of local brown bear populations.

Five aerial surveys of bears aggregated along certain salmon spawning streams will be conducted between July 25, and October 10. The following streams will be surveyed:

July 25 - Aug 10	Contact
Aug 10 - 25	Margot, American, Moraine, Idavain, Nanuktuk
Aug 25 - Sept 10	Hardscrabble, Margot
Sept 10 - 25	Savonoski, Hardscrabble
Sept 25 - Oct 10	Savonoski

The numbers and composition of bears along Brooks River will be recorded daily, from the ground, during July 5-15 and Oct 1-10. Data for each bear

or bear group seen during surveys will be recorded on a field data form. The data will be analyzed to determine numbers of bears seen in relation to survey duration, composition of bears seen, and average size of cub and yearling litters. In addition to stream surveys, the locations of any females with cubs of the year seen anywhere in the park will be recorded to provide information on (1) the types of habitat used by females with cubs, and (2) areas of particular concern for hiker safety.

Research is needed on the effects of hunting in the preserve and adjacent to the park on population dynamics of bears in the park. Male bears travel widely, and many male bears in the park may therefore be subject to hunting. Adult male bears are believed to have a major role in the natural regulation of bear populations. Hunting may therefore remove individuals that are important in regulating the park population.

Est. cost of
monitoring: \$6,400

Wolf

Reproductive packs of wolves (*Canis lupus*) occupy largely exclusive territories. Most individuals of a pack travel together in a few large groups during winter which break up into smaller groups during summer. Wolves remain near a whelping den for 4-8 weeks during June and July. The pups are then moved to secondary dens, or "rendezvous sites." A series of secondary sites may be used during a summer.

Little is presently known about the numbers and range of wolves in Katmai. The objective of monitoring is to determine the number of packs in the park, identify their home ranges, and eventually identify denning and rendezvous areas.

All observations of wolves in Katmai will be recorded on wildlife observation cards (Form 10-577) which will be submitted to the Resource Management Specialist. Observations of tracks during winter will be recorded.

Est. cost: \$500

Lynx and Mustelids

No method exists to monitor populations of small carnivores without considerable cost and effort. Therefore, populations of these species will not be systematically monitored.

Sea Lion and Seal

A detailed inventory is needed of ecosystems along the Shelikof Strait seacoast. The inventory will identify areas of important habitat for sea mammals and provide information needed for protection of these habitats.

Moose

Van Ballenberghe (1979) described the strengths and weaknesses of several moose productivity indices. The most commonly used measure of net productivity is aerial reconnaissance of autumn cow/calf ratios, after summer mortality of newborn calves has taken place. However, observed cow/calf ratios are correlated with the amount of search effort because cows with calves tend to congregate in small groups that are less visible than large groups. Also, autumn cow/calf ratios vary with the number of non-breeding yearlings and 2-year-olds that are counted as cows. In populations with large cohorts of nonbreeding yearlings and 2-year-olds, cow/calf ratios may be deceptively low. In addition, it should be recognized that data on mortality as well as productivity are necessary to accurately determine population trends.

The objective of monitoring is to (1) identify the most useful locations for future monitoring, and (2) develop a long-term program to monitor moose productivity and, if possible, population trends.

Aerial surveys will be conducted during late October and November. Each of the following streams will be surveyed at least twice during 1984, while survey methods are being developed: Funnel, Moraine, Strike, Kamishak, American, Hardscrabble, Margot, Savonoski, Rainbow, and Angle. Data for each moose or group of moose will be recorded on a field data form.

The data will be analyzed to determine the numbers of moose seen, average group size, and cow/calf ratio in relation to survey duration.

Annual monitoring of moose in the Angle Creek/Takayoto Creek drainage by the Alaska Department of Fish and Game suggests that the population is declining and that the bull/cow ratio has changed significantly. The moose are subject to hunting when they range out of the park and to predation by brown bears. Research is needed to evaluate the effects of predation and hunting on the population dynamics, behavior, and habitat use of the moose to determine whether the natural condition of the population is being compromised.

Est. cost of
monitoring: \$5,400

Caribou

The northern Alaska Peninsula caribou herd has a post-calving population of about 17,000. The caribou spend most of their time outside of the park, but range into the western portion of Katmai occasionally during both winter and summer, using primarily lowlands, rolling hills, and the western mountains. Aerial surveys of the caribou population are conducted by the Alaska Department of Fish and Game and the U.S. Fish and Wildlife Service. Additional monitoring will not be conducted by the National Park Service.

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